

What is Claimed is:

1. A nonaqueous electrolyte secondary battery comprises  
a cathode having a cathode active material capable of being electrochemically doped/dedoped with lithium;  
an anode having an anode active material capable of being electrochemically doped/dedoped with lithium and  
a nonaqueous electrolyte interposed between the cathode and the anode,  
wherein said cathode active material is a lithium composite oxide expressed by a general formula  $\text{Li}_x\text{MO}_2$  (here, x is not smaller than 0.9 and M indicates at least one or more elements selected from between Fe, Co, Mn, Cu, Zn, Al, Sn, B, Ga, Cr, V, Ti, Mg, Ca and Sr) and  
said nonaqueous electrolyte includes at least one or more kinds of vinylene carbonate, methoxybenzene compounds or antioxidants.
2. A nonaqueous electrolyte secondary battery according to claim 1, wherein said nonaqueous electrolyte includes 0.05 wt% or more to 20 wt% or lower of the vinylene carbonate.
3. A nonaqueous electrolyte secondary battery according to claim 1, wherein said nonaqueous electrolyte includes 0.01 wt% or more to 10 wt% or lower of the methoxybenzene compounds.

4. A nonaqueous electrolyte secondary battery according to claim 1, wherein said antioxidants employ one kind of material selected from between quinones, aromatic amines, phenols, vitamin E, vitamin C, sesamoles and quercetins, and said methoxybenzene compounds employ one kind of material selected from between 4-fluoroanisole, 2, 4-difluoroanisole, 2-bromoanisole, 2, 3, 5, 6-tetrafluoro-4-methylanisole.

5. A nonaqueous electrolyte secondary battery according to claim 1, wherein said cathode has a cathode active material layer formed by applying a cathode compound mixture including a cathode active material and a binding material to both the surfaces of a metal foil serving as a cathode current collector, said anode has an anode active material layer formed by uniformly applying an anode compound mixture including an anode active material and a binding agent to a metal foil serving as an anode current collector and drying the anode compound mixture and said cathode and the anode are laminated through microporous film separators and the obtained laminated body is coiled spirally a plurality of times to obtain a coiled electrode body.

6. A nonaqueous electrolyte secondary battery according to claim 1, wherein said nonaqueous electrolyte secondary battery is a solid electrolyte battery using, as said electrolyte, a solid polymer electrolyte including one or more of substances or mixture of polymer compounds or a gel electrolyte battery using a gel

solid electrolyte including a swelling solvent.

7. A nonaqueous electrolyte secondary battery according to claim 1, wherein said antioxidants employ 2, 6-di-t-butyl-p-cresol (BHT).

8. A nonaqueous electrolyte secondary battery according to claim 1, wherein said methoxybenzene compounds employ 4-fluoroanisole.

9. A nonaqueous electrolyte secondary battery comprises  
a cathode having a cathode active material capable of being electrochemically doped/dedoped with lithium;  
an anode having an anode active material capable of being electrochemically doped/dedoped with lithium and  
a nonaqueous electrolyte interposed between the cathode and the anode,  
wherein said cathode active material includes a lithium-manganese composite oxide expressed by a general formula  $\text{Li}_x\text{Mn}_{2-y}\text{M}'_y\text{O}_4$  (here, x satisfies the relation expressed by  $x \geq 0.9$ , y satisfies the relation expressed by  $0.5 \geq y \geq 0.01$ . M' indicates at least one or more elements selected from between Fe, Co, Ni, Cu, Zn, Al, Sn, Cr, V, Ti, Mg, Ca and Sr) and said nonaqueous electrolyte includes at least one or more kinds of vinylene carbonate, methoxybenzene compounds or antioxidants.

10. A nonaqueous electrolyte secondary battery according to claim 9, wherein said nonaqueous electrolyte includes 0.05 wt% or more to 20 wt% or lower of the vinylene carbonate.

11. A nonaqueous electrolyte secondary battery according to claim 9, wherein said nonaqueous electrolyte includes 0.01 wt% or more to 10 wt% or lower of the methoxybenzene compounds.

12. A nonaqueous electrolyte secondary battery according to claim 9, wherein said antioxidants employ one kind of material selected from between quinones, aromatic amines, phenols, vitamin E, vitamin C, sesamoles and quercetins, and said methoxybenzene compounds employ one kind of material selected from between 4-fluoroanisole, 2, 4-difluoroanisole, 2-bromoanisole, 2, 3, 5, 6-tetrafluoro-4-methylanisole.

13. A nonaqueous electrolyte secondary battery according to claim 9, wherein said antioxidants employ 2- 6-di-t-butyl-p-cresol (BHT).

14. A nonaqueous electrolyte secondary battery according to claim 9, wherein said methoxybenzene compounds employ 4-fluoroanisole.

15. A nonaqueous electrolyte secondary battery according to claim 9, wherein said cathode has a cathode active material layer formed by applying a cathode compound mixture including a cathode active material and a binding material to both the surfaces of a metal foil serving as a cathode current collector, said anode has an anode active material layer formed by uniformly applying an anode compound mixture including an anode active material and a binding agent to a metal foil serving as an anode current collector and drying the anode compound mixture and said cathode and the anode are laminated through microporous film separators and the obtained laminated body is coiled spirally a plurality of times to obtain a coiled electrode body.

16. A nonaqueous electrolyte secondary battery according to claim 9, wherein said nonaqueous electrolyte secondary battery is a solid electrolyte battery using, as said electrolyte, a solid polymer electrolyte including one or more of substances or mixture of polymer compounds or a gel electrolyte battery using a gel solid electrolyte including a swelling solvent.

17. A nonaqueous electrolyte secondary battery comprises  
a cathode having a cathode active material capable of being electrochemically doped/dedoped with lithium;  
an anode having an anode active material capable of being electrochemically doped/dedoped with lithium and

a nonaqueous electrolyte interposed between the cathode and the anode,

wherein said cathode active material includes a lithium-manganese composite oxide expressed by a general formula  $\text{Li}_x\text{Mn}_{2-y}\text{M}'_y\text{O}_4$  (here, x satisfies the relation expressed by  $x \geq 0.9$  and y satisfies the relation expressed by  $0.5 \geq y \geq 0.01$ . M' indicates at least one or more elements selected from between Fe, Co, Ni, Cu, Zn, Al, Sn, Cr, V, Ti, Mg, Ca and Sr) and a lithium composite oxide expressed by a general formula  $\text{LiM}''_z\text{O}_2$  (here, z satisfies the relation expressed by  $1 \geq z \geq 0.5$  and M'' indicates at least one or more elements selected from between Fe, Co, Mn, Cu, Zn, Al, Sn, B, Ga, Cr, V, Ti, Mg, Ca and Sr) and said nonaqueous electrolyte includes at least one or more kinds of vinylene carbonate, methoxybenzene compounds or antioxidants.

18. A nonaqueous electrolyte secondary battery according to claim 17, wherein said nonaqueous electrolyte includes 0.05 wt% or more to 20 wt% or lower of the vinylene carbonate.

19. A nonaqueous electrolyte secondary battery according to claim 17, wherein said nonaqueous electrolyte includes 0.01 wt% or more to 10 wt% or lower of the methoxybenzene compounds.

20. A nonaqueous electrolyte secondary battery according to claim 17, wherein said antioxidants employ one kind of material selected from between

quinones, aromatic amines, phenols, vitamin E, vitamin C, sesamoles and quercetins, and said methoxybenzene compounds employ one kind of material selected from between 4-fluoroanisole, 2, 4-difluoroanisole, 2-bromoanisole, 2, 3, 5, 6-tetrafluoro-4-methylanisole.

21. A nonaqueous electrolyte secondary battery according to claim 17, wherein said cathode has a cathode active material layer formed by applying a cathode compound mixture including a cathode active material and a binding material to both the surfaces of a metal foil serving as a cathode current collector, said anode has an anode active material layer formed by uniformly applying an anode compound mixture including an anode active material and a binding agent to a metal foil serving as an anode current collector and drying the anode compound mixture and said cathode and the anode are laminated through microporous film separators and the obtained laminated body is coiled spirally a plurality of times to obtain a coiled electrode body.

22. A nonaqueous electrolyte secondary battery according to claim 17, wherein said nonaqueous electrolyte secondary battery is a solid electrolyte battery using, as said electrolyte, a solid polymer electrolyte including one or more of substances or mixture of polymer compounds or a gel electrolyte battery using a gel solid electrolyte including a swelling solvent.

23. A nonaqueous electrolyte secondary battery according to claim 17, wherein said antioxidants employ 2, 6-di-t-butyl-p-cresol (BHT).

24. A nonaqueous electrolyte secondary battery according to claim 17, wherein said methoxybenzene compounds employ 4-fluoroanisole.

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